

Claims:

1. A method of manufacturing an electrolytic capacitor comprising the steps:
forming a polymeric housing defining a chamber and having an opening
providing access to the chamber;
- 5 stacking a plurality of flat conductive layers to generate a stack;
inserting the stack into the chamber;
extending an electrically conductive feedthrough from the stack to a position
outside of the chamber by way of the opening; and
sealing the opening about the feedthrough.
- 10 2. The method of claim 1 wherein the step of sealing includes thermally affixing
together portions of the housing with the feedthrough trapped therebetween.
3. The method of claim 1 wherein the step of forming the housing includes vacuum
forming the housing.
4. The method of claim 1 wherein the step of forming the housing includes heating a
15 sheet of polymeric material, and conforming it to a tool.
5. The method of claim 4 wherein the tool has a shape based on the shape of the
stack.
6. The method of claim 1 including providing a sleeve about the feedthrough,
wherein the sleeve material is different from the conductive feedthrough material.
- 20 7. The method of claim 6 wherein the sleeve has an elongated cross section.
8. The method of claim 7 wherein the sleeve cross section terminates at acute
vertexes, such that the housing material may readily seal about the sleeve without
voids.
9. The method of claim 6 wherein the sleeve is an elastomeric material.
- 25 10. The method of claim 1 wherein the housing is formed of high density
polyethylene.

11. The method of claim 1 including inserting the stack into the housing by way of the opening.
12. The method of claim 1 wherein the step of sealing comprises welding opposite sides of the housing together along a single line.
- 5 13. The method of claim 1 wherein the step of sealing includes generating and maintaining compression of the feedthrough to provide a fluid seal.
14. The method of claim 1 wherein the step of sealing includes connecting a header to the housing to enclose the opening.
15. The method of claim 14 including capturing the feedthrough between the housing and the header.
- 10 16. The method of claim 1 including sealing a vent element into the opening.
17. The method of claim 1 wherein sealing includes a first sealing operation in which an aperture to the chamber is maintained, and including the steps of filling the chamber with electrolyte by way of the aperture, and sealing the aperture.
- 15 18. An electrolytic capacitor comprising:
 - a polymeric housing comprising a pocket defining a chamber and having an opening along a selected edge;
 - the opening comprising opposed sides sealed together to provide a seam;
 - a plurality of conductive layers positioned within the chamber; and
 - 20 a feed-through conductor element having a first end electrically connected to the layers, an intermediate portion passing through the seam, and an external portion extending from the housing.
19. The capacitor of claim 18 wherein at least the intermediate portion of the feedthrough includes a surrounding sleeve, and wherein the sleeve material is different
- 25 from the conductive feedthrough material.
20. The capacitor of claim 19 wherein the sleeve has an elongated cross section at the intermediate portion.

21. The capacitor of claim 19 wherein the sleeve is an elastomeric material.
22. The capacitor of claim 18 wherein the housing is formed of high density polyethylene.
23. The capacitor of claim 18 wherein the seam is a single line.
- 5 24. The capacitor of claim 18 including a vent element captured within the seam.
25. The capacitor of claim 18 including a second separate feed-through element.